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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,251	02/24/2004	Pei Choa Wang	OP-093000041	1177
46103	7590	04/11/2006	EXAMINER	
HDSL 4331 STEVENS BATTLE LANE FAIRFAX, VA 22033			FLETCHER III, WILLIAM P	
			ART UNIT	PAPER NUMBER
			1762	
DATE MAILED: 04/11/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

C7

**Office Action Summary**

Application No.

10/784,251

Applicant(s)

WANG, PEI CHOA

Examiner

William P. Fletcher III

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1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed (4/3/2006) in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/3/2006 has been entered.

### ***Response to Amendment***

2. Claims 1, 2, and 4-6 are now pending.

### ***Response to Arguments***

3. Applicant's arguments, see the response, filed 2/3/2006, with respect to the objections and rejections under 35 USC 112, set-forth in the prior Office action, have been fully considered and are persuasive. The objections and rejections have been withdrawn in view of applicant's amendment.

4. Applicant's arguments, see the response, filed 2/3/2006, with respect to the rejection(s) of claim(s) 1, 2, and 4-6 under 35 USC 103(a), have been fully considered and are persuasive. None of the cited references, alone or in combination, teach or suggest "a container...having a plurality of bottom surfaces arranged in a stair-like configuration," as independent claim 1 has been amended to recite. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in further view of Roussos et al. (US 4,510,922 A).

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5. The examiner continues to apply Leonard, Wang, and Eastman against the pending claims for the reasons cited in prior Office actions. The responses to applicant's arguments vis-à-vis these references, also set-forth in prior Office actions, are incorporated herein in their entirety.

### ***Drawings***

6. The drawings are objected to by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons indicated on the attached Form PTO-948. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 1, 2, and 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

9. As noted in the Office action mailed 6/18/2004, the term “stair-like” in claim 1 renders the claim indefinite. The precise metes and bounds of structures intended to be encompassed by this term is unclear. Precisely what substrate geometries may be considered “stair-like?” How closely must the substrate resemble a “stair” to be considered “stair-like?”

***Claim Rejections - 35 USC § 103***

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. **Claims 1, 2, and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leonard et al. (US 4,885,129 A) in view of Wang (US 5,718,046 A), Eastman (US 4,196,504 A), and Roussos et al. (US 4,510,922 A).**

12. Leonard, Wang, and Eastman are applied against the claims for the same reasons as set forth under this heading in the prior Office action.

Specifically, Leonard teaches a method for making sintered metal heat pipe wicks [1:38-40]. Although this reference places no limitation on the particular configuration of the pipe, the reference does teach: (i) that heat pipes most advantageously utilize sintered porous wicks in combination with grooves on the pipe surface [2:36-42]; and (ii) that Leonard’s method is suitable for “making a wick in tight spaces and around corners so that it can be used to manufacture wicks of complex shapes” [2:67-3:2].

While the above teaching would have suggested to one of ordinary skill in the art that the method of Leonard is suitable for doing so, none of the cited references explicitly states that the pipe has “a plurality of bottom surfaces arranged in a stair-like configuration,” as presently claimed.

Roussos teaches a heat pipe having “internal fins defining grooves containing wick material” [5:4-5]. From this, it is clear that such an arrangement is suitable for the production of a heat pipe. It is the examiner’s position that the grooves and lands define a stair-like configuration (i.e., a plurality of bottom surfaces of different “elevations”).

Consequently, it would have been obvious to one of ordinary skill in the art to further modify the method of Leonard so as to utilize, as the pipe to be coated, a pipe having, on its interior surface, a series of grooves to be filled with a slurry. One of ordinary skill in the art would have been motivated to do so both by the teaching of Roussos that such an arrangement is suitable for a heat pipe, as well as the teaching of Leonard that grooves in combination with sintered porous wicks are advantageous. Further, Leonard’s teaching of making wicks of complex shapes (quoted above) provides a reasonable expectation of successfully making this combination.

### ***Conclusion***

13. The prompt development of clear issues in the prosecution history requires that applicant’s reply to this Office action be fully responsive (MPEP § 714.02). When filing an amendment, applicant should specifically point out the support for any amendment made to the disclosure, including new or amended claims (MPEP §§ 714.02 & 2163). A fully responsive reply to this Office action, if it includes new or amended claims, must therefore include an

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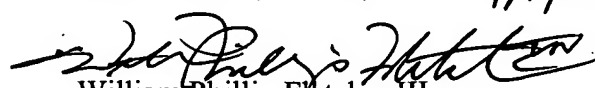
explicit citation (i.e., page number and line number) of that/those portion(s) of the original disclosure which applicant contends support(s) the new or amended limitation(s).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

4/7/2006



William Phillip Fletcher III  
Patent Examiner (PSA), USPTO  
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